Live Training Campaign Plan

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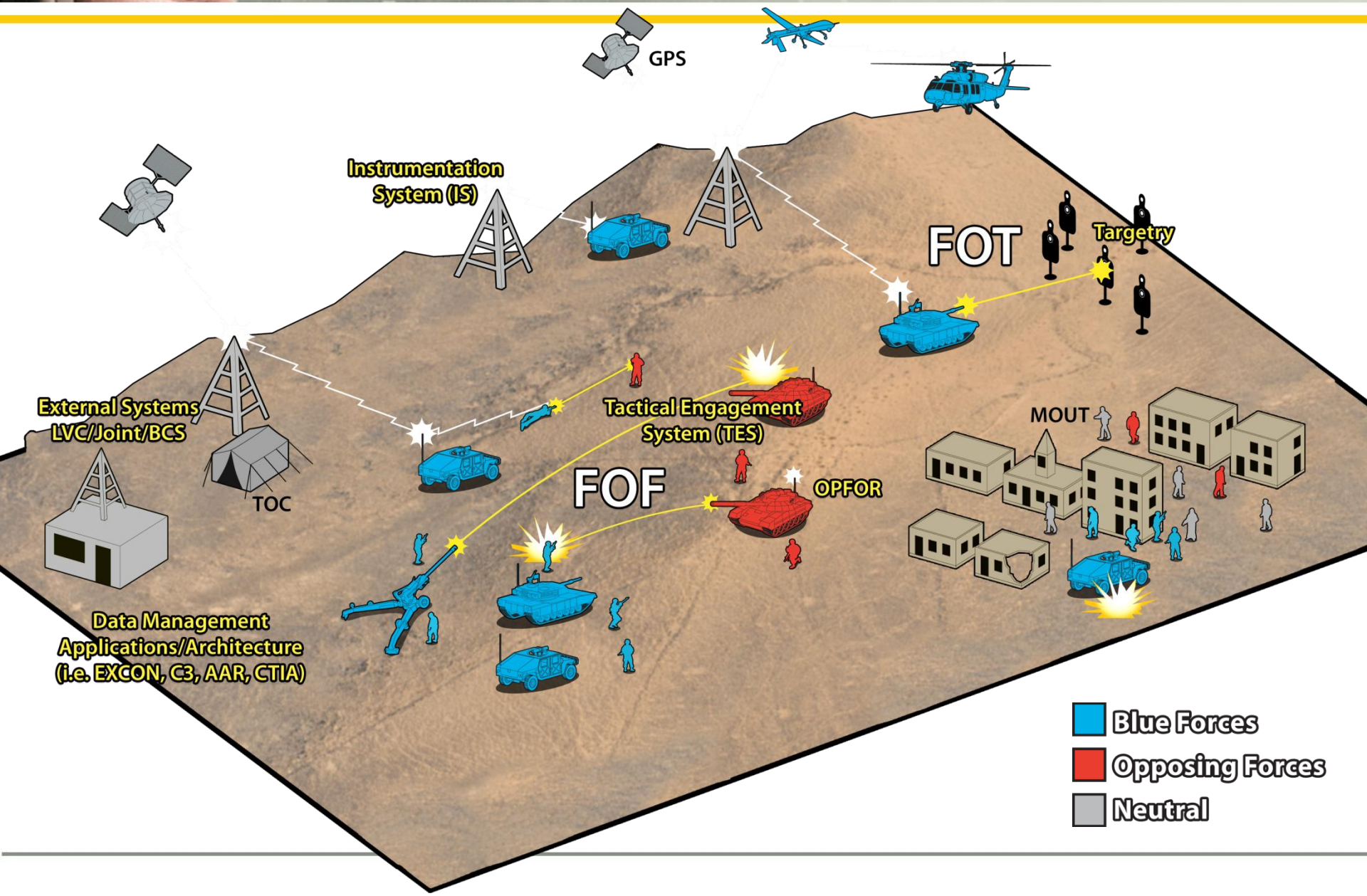
2 December 2010

Outline

- Introductions
- Live Training System of Systems
- Strategic Setting
  - Army Training Concept
  - Upcoming Studies/Programs
- Live Training Campaign Plan
  - LOE 1 FoF
  - LOE 2 FoT
- New Live Training Portal

Live Training System of Systems



Strategic Setting

Strategic Setting

- Situation:
  - Severely constrained resources; current and future
  - ARFORGEN Cycle
  - Return of forces to homestation with longer dwell time
  - Full Spectrum Operations
    - Combat Training Centers
    - Homestation
  - Rapid fielding of new systems and large number of improvements to current systems

Strategic Setting

- Given current situation, the Live Training Environment (LTE) must:
  - Maximize the resources that are available
  - Field systems that are multi-use across the LTE, interoperable, with low personnel overhead that reduce the overall Life Cycle Cost to the Army
  - Field systems that are scalable and deployable
  - Identify and assign TADSS as either a System or Non-System responsibility and program and manage accordingly
  - Integrate the LTE into the Live Virtual Constructive Integrated Training Environment (LVC ITE)

Live Training End State

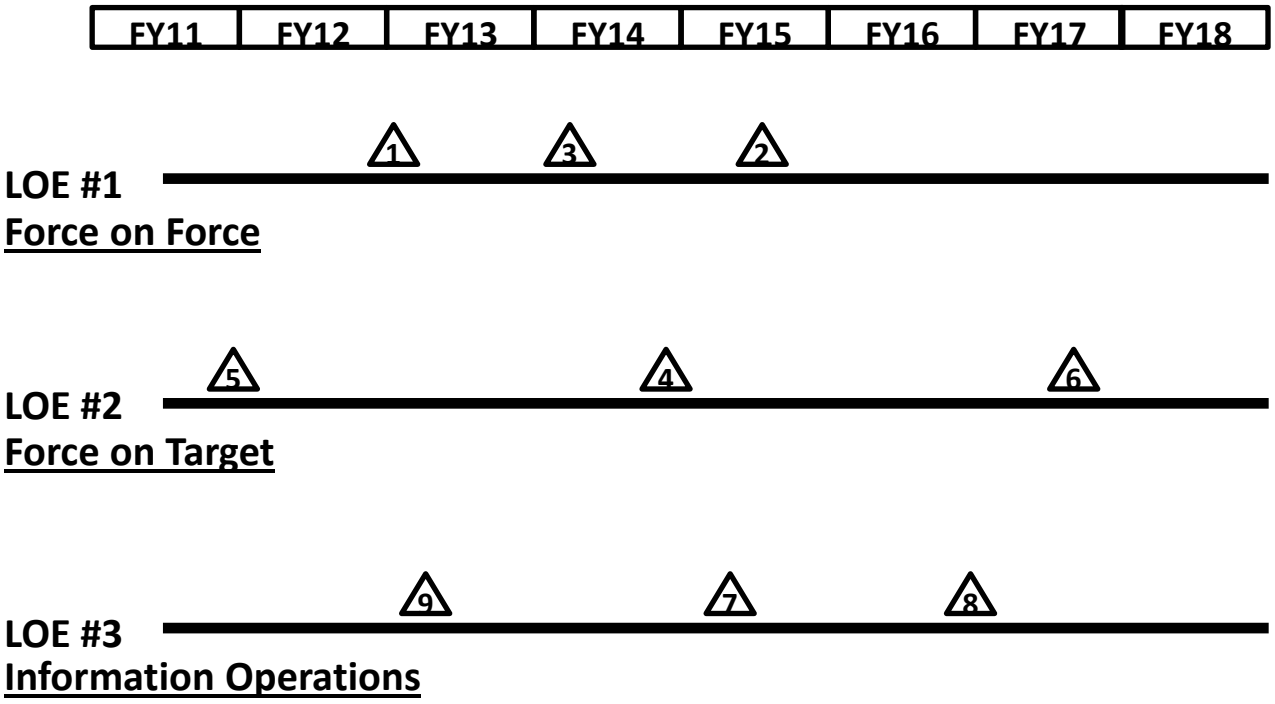
- Objective End State:
  - Standard Live Training Environment (LTE) Architecture and Protocols
  - Government-owned
  - Systems PMs build Live Training capability into respective systems; responsible for updating the replication of their systems in the training environment as well as the operational environment (AR 70-1)
  - Training capability and capacity built into operational systems organic to units and Soldiers (i.e. information networks, communications networks, weapons systems, etc.)
  - PK values proposed by System PMs vetted by AMSAA and approved by CAC-T for ITE
  - No external power or infrastructure required

Requirements Way Ahead

- Way Ahead:
  - Single approved end state for the Live Training Environment (LTE)
  - Develop CDD(s) that articulates approved end state
    - Key Performance Parameters carefully crafted to drive desired end state
  - Supporting CPDs
    - Based off of Live Training Environment CDDs
    - Incremental approach based on what is technically and fiscally feasible at that time
    - Backwards planned off of LTE end state

Live Training Campaign Plan

Live Training Campaign Plan (TCM-L & PM Trade Combined Vision)



Objectives

1 - 2

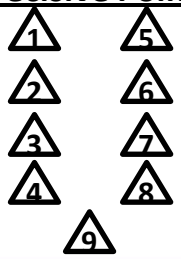
3 - 4

5 - 6

End State

Soldiers and Units ready to conduct Full Spectrum Operations against a hybrid threat anywhere on the spectrum of conflict ISO ARFORGEN

Decisive Points



Objectives	CC / CR / CV
OBJ #1:	LOO #1
OBJ #2:	LOO #2
OBJ #3:	LOO #3
OBJ #4:	LOO #4
OBJ #5:	
OBJ #6:	

Key Outputs
Task (Purpose) + Responsibility

LOO #1
LOO #2
LOO #3
LOO #4

Army Training Concept

- ARFORGEN:
  - Increased dwell time to train at homestation
  - 1 BCT rotation to CTC over 24 months
- Live-Virtual-Constructive (LVC)
- 50% Night Operations at CTCs
- Full Spectrum Operations (FSO) focus
- TCM Vision for Live Training – training organic to operational equipment

Upcoming Studies/Programs

- Ground Combat Vehicle (GCV):
  - Increment 1: Infantry Fighting Vehicle (IFV)
  - Requirements:
    - Integrated Embedded Training (ET) design
    - Supports individual, crew and collective training in LVC
    - Maximize reuse of tactical HW/SW
  - Live Training Implications:
    - Requirements for embedded TESS
    - Dual-use of laser (tactical/training applications)
    - Live training range interoperability
  - New solicitation is ongoing; Contract Award in late FY11
    - MS A – FY11
    - MS B – FY13
    - MS C – FY16

Upcoming Studies/Programs

- USMC/Navy Squad Immersion Training Environment (SITE) AOA:
  - SITE is a USMC POR
  - Family of Systems designed to improve squad training
  - Ongoing AoA will address possible solutions for capability/training gaps
  - AoA will provide ROI input for future technology investments
  - AoA Study Report due May 2011

Upcoming Studies/Programs

- LVC Integrated Training Environment (LVC ITE):
  - 1st Increment Fieldings:
    - Fort Bliss/Fort Hood/Fort Campbell in 4th Qtr FY12
  - Increment 1 Programs:
    - HITS, JLCCTC/OneSAF, AVCATT/CCTT/RVTT/CFFT
- VCSA Virtual Qualification AOA:
  - AOA purpose to determine best combination of L, V and C training events to support non-stabilized platforms gunnery
  - Weapon platforms: M240B, M249, M2, M60, MK-19
  - Vehicle platforms: HMMWV, ASV, CPP
  - Report due June 2011 to VCSA

Upcoming Studies/Programs

- Joint Capability Release (JCR):
  - Next release of FBCB2/BFT for improved C2/SA
  - Provides enhanced L-band bandwidth along with Type-1 security
  - Tactical Ground Reporting (TIGR) System
  - Fielding begins this FY (FY11)
  - JCR Beacon scheduled for FY14 – provides SA to Soldier level

Upcoming Studies/Programs

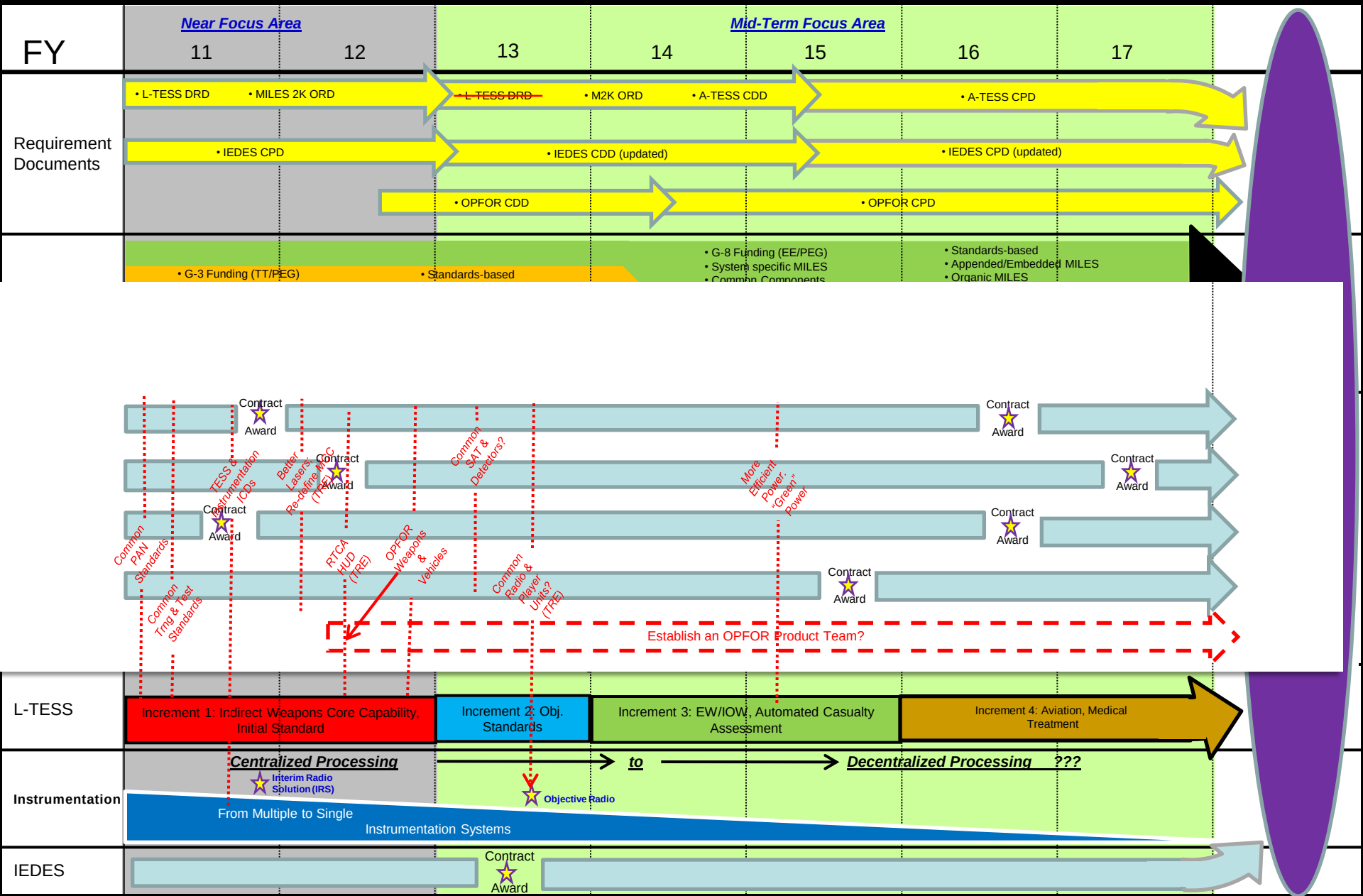
- Joint Tactical Radio System (JTRS):
  - Army plans to start fielding JTRS in FY12
  - Early versions of HMS (AN/PRC-154) being used on DRTS ranges to support dismounted players
  - HMS MS C scheduled for 4th qtr FY11
  - PM TRADE working closely with PM JTRS-HMS for future integration of live training requirements

Force on Force Campaign Plan

FY17 FoF Future State (The Vision)

- Key Capability/Requirement Gaps:
  - Capability to train Indirect Fire / Non-Line of Sight systems in Live exercises
  - Embedded / Organic TESS
    - System PMs involved
    - Reduce Soldier Hardware
  - Tactical engagements not limited by environment (smoke, fog, weather, etc.)
  - High Fidelity Real Time Casualty Assessments, Probability of Hit & Kill
    - Range dependent engagements
    - Greater information exchange between shooter and target
  - Common components/hardware across product lines (BLUFOR and OPFOR systems)
  - Reduce external power requirements / increase “green” use of power
  - Common test and training solutions
  - Eliminate negative training

Force on Force – Campaign Plan



FoF Standards & Architecture

Campaign Initiative:

- Continue Common Standards Development
- Develop Common Test & Training Architecture

Campaign Plan Details:

- PAN Standard — Near-Term – 1 yr
  - Interoperable devices
  - Common components
- Instrumentation / TESS ICD — Near-Term – 1 yr
  - 1 overarching interface between TESS devices and Instrumentation systems
- Live Test & Training Architecture
  - Requirements analysis — Mid-Term – 1 - 2 yrs
  - Technology roadmap
  - Standards and Interface Roadmap

Indirect Fire

Campaign Initiative:

- Develop Indirect Fire Training Capability

Campaign Plan Details:

- Appended Capability

Mid-Term – 1 - 2 yrs

  - Weapon Orientation Module
  - Focus on Analog systems (mortars, artillery, M203/320, etc)
  - Continue to work with RDECOM (SBIRs and BAA efforts)
  - Leverage tactical systems
- Embedded Capability

Long-Term – 3-5 yrs

  - Work with platform PMs (Paladin)
  - Integrate with Fire Control Systems
  - Develop common algorithms

High Fidelity RTCA

Campaign Initiative:

- Develop new TESS RTCA Capability
- Migration plan

Campaign Plan Details:

- RTCA Technology Assessment
  - Better obscuration penetration
  - More data throughput
  - New Government Standard to replace existing MCC Standard
  - Evaluate existing technologies (laser, RF, other)
  - Potential SBIR topic or Technology Readiness Evaluation (TRE)
- Develop new fielding strategy

Mid-Term – 1 - 2 yrs

Common Components

Campaign Initiative:

- Common Components / Hardware
- Common OPFOR & BLUFOR Systems
- Power Requirements

Campaign Plan Details:

- Common hardware — Mid-Term – 1 - 2 yrs
  - Implementation of PAN Standard
  - Interoperable devices across I-MILES products
  - Common SAT with bracket
  - Common detectors
- Common OPFOR & BLUFOR Systems
  - Requirements analysis against existing I-MILES products — Long-Term – 3-5 yrs
  - New Acquisition Strategy
- Reduce component power needs — Long-Term – 3-5 yrs
  - Develop power standard
  - Work with CECOM
  - Investigate alternative power sources

Test & Training

Campaign Initiative:

- Develop common products across Live Test and Training Communities

Campaign Plan Details:

- Live Test & Training Architecture
  - Requirements analysis
  - Technology roadmap
  - Standards and Interface Roadmap

  Mid-Term – 1 - 2 yrs
- Common Instrumentation Network

  Long-Term – 3-5 yrs
- Common RTCA Methodology
  - Algorithms
  - Ph/Pk implementation
  - Integrate with V & C domains

  Mid-Term – 1 - 2 yrs
- CTIA / LT2
  - Requirements gap analysis
  - Develop plan for common software baseline
  - Integrate testing community into LT2 family

  Multi-year/On-going

Training Realism

Campaign Initiative:

- Develop a product line that provides realistic training
- Provide training capability for Forward Observers and MK-19 gunners
- Train all weapons in the armory

Campaign Plan Details:

- Virtual Reality Display Technology assessment
  - TRE or SBIR effort
  - Partner with STTC
  - Visualize Non-Line of Sight and Mk-19 round impacts

Mid-Term – 1 - 2 yrs

- Analyze training needs for all weapons
  - Requirements gap
  - Develop technology roadmap

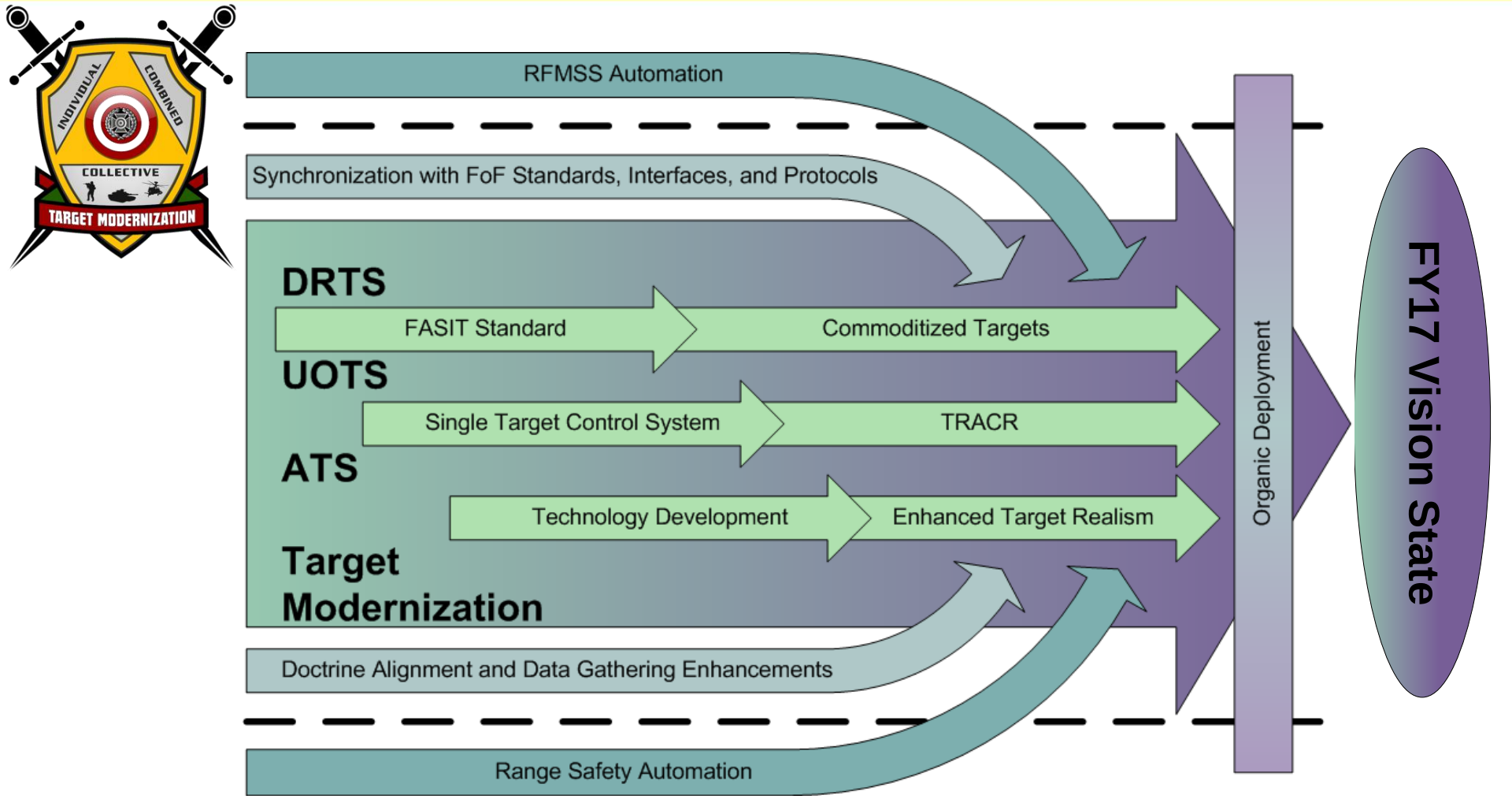
Long-Term – 3-5 yrs

Force on Target Campaign Plan

FY17 FoT Future State

- **One target standard/solution for all Army live training ranges:**
  - Includes: CTCs, Instrumented Ranges, Urban Operations, Maneuver, and Lane-Based
  - Addressing: All devices downrange in the target positions and the interface standards/protocol to these devices
  - Control: A singular (scalable) control system on all ranges from a stand-alone controller to a product line component within a greater system
- Support Training:
  - Provide the proper conditions to meet live fire tasks to standard
  - Stimulates the full array of modern Soldiers and system sensors
  - Realism to thermal & Combat ID targets to reflect target operational postures
  - Scores contact, area, and proximity munitions
  - Provide scalable and reconfigurable training assets
  - Improve operational availability and reduce support cost
- Support Range Operations by:
  - Provisioning of Spare Parts through the Army Supply System
  - Warehousing of high demand spare parts and components
  - Proper documentation and processes to allow for DOL maintenance

Operational View



Total Ownership Cost Management through Standardization
Revitalization of Existing Ranges and Equipment through Innovation
Improve Training through Enhanced Realism

FoT Mission and Vision

Mission:

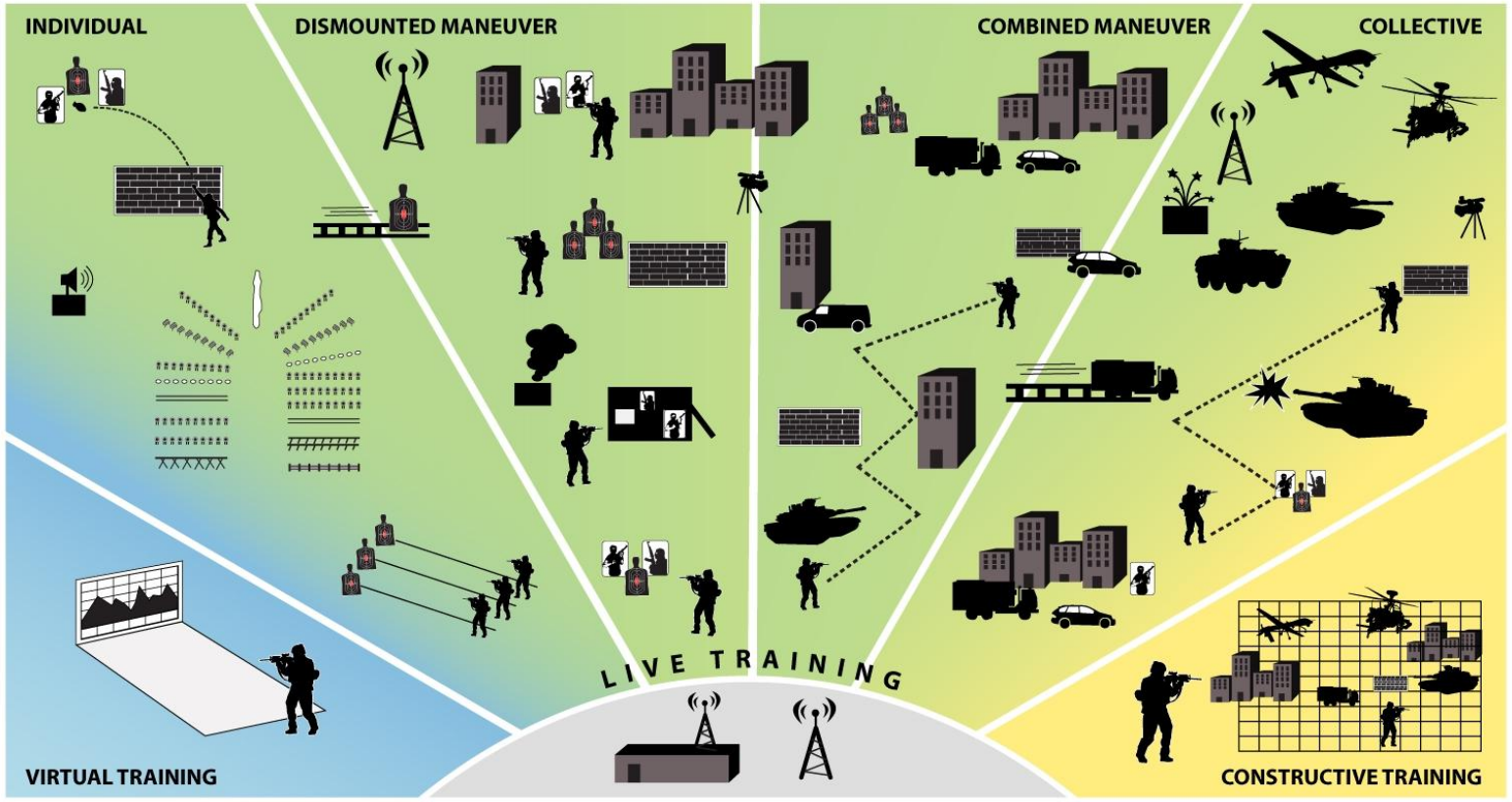
Applicable to all live fire range training MDEPs. Provide the Warfighter relevant targets and ancillary devices that addresses Live fire training gaps from individual and team to combined arms exercises. Mandate utilization of FASIT standard interfaces, protocols, and specifications which allow for scalable interoperable systems for small arms ranges through collective ranges. Mitigate operational, support, and sustainment shortfalls due to the divergence of fielded systems, components, targets, and devices now and in the future.

Vision:

Provide the Warfighter relevant targets and devices that simulate and stimulate Soldiers and sensors in a live fire environment from individual and team to combined arms exercises. Develop an interoperable Force on Target solution that interfaces with other LVC ITE Systems. Support range staffs by providing increased reliability, throughput, availability of spare parts in Federal Supply System, and supports existing organic and CLS assets.

Programmatic OV-1

OV-1 Future Army System of Integrated Targets (FASIT)



The Future Army System of Integrated Targets (FASIT) supports the full scope of precision and qualification live fire, live training using instrumentation, and combined arms Force-on-Target (FOT) training exercises at the Brigade Combat Team (BCT) level and below in all Joint Capability Areas on home station ranges, Combat Training Center ranges, and deployed training environments. FASIT is a component of the Live Training Transformation Family of Training Systems (LT2-FTS) and provides common scenario development, exercise control, AAR collection and presentation, administrative support, communication infrastructure, target presentation/representation, weapons effect measurement, and battlefield/area weapon effects. FASIT supports LOS and NLOS 2D, 3D, and multi-spectral targets as well as integration with UAS and UGS capabilities, and it stimulates Warfighting Battlefield Operating Systems (BOSs) in the live training environment.

Training Capabilities

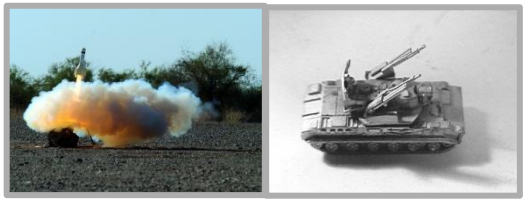
- Training gaps that are not currently supported or need improvement:
  - Area Weapons Scoring – Counter Defilade Weapons System, MK-19, Mortars, rockets, etc.
  - Precision Scoring
  - Reconfigurable Target Packages
  - Semi-Autonomous Targets
  - Increased Realism

MK-19/ M203
Area Weapons Scoring

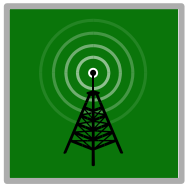
CDWS
Airburst Munitions Scoring

Current Family of
Army Watercraft Targets

Affordable Trackless
Semi-Autonomous Targets



Aviation Requirements Integration



Cooperative
Target ID

FASIT Standards and Protocols

Campaign Initiative:

- Continue Common Standards Development
- Develop Deployable Architecture
- Advance Common Target Control System
- Synchronize with LT2 and CTIA

Campaign Plan Details:

- FASIT Standards: — Near-Term – 1 yr
  - Sound Effects Devices
  - Range Effects Simulators
  - Non-Contact Hit Sensors — Mid-Term – 2-3 yrs
  - Range Interface Module
- Deployable Architecture — Long-Term – 4-5 yrs
  - Narrow Band RF protocols
  - Scalable Range Solutions
- TRACR — Multi-year/On-going
  - Thin Client
  - SOA Integration/Implementing
- LT2/CTIA — Multi-year/On-going
  - PAN Standard Synchronization

Outcomes: “Commodity” based standards; Device interchangeability; Reduced life cycle costs; One government-owned control system

Technology Development

- FY11-12 RDT&E Plan:
  - Development of a low cost non-contact hit sensor
    - Support of counter defilade/air-burst weapons
    - Support of area effects weapons
    - Support of zeroing and CFF training
  - Development of reconfigurable target systems and technology
    - Support of RF FASIT standards/development
    - Trackless movers
  - Target silhouette development/integration
    - Multi-gradient, multi-zoned, posture dependent CID/Thermal for vehicle/dismounted silhouettes
  - Target reliability enhancements (improved silhouettes, etc.)
    - NSN targets
    - Standards and Processes
  - Development/integration of Fuel Cell technology into moving targets
    - Cost efficiencies over battery and fixed power
  - Standardization of narrow band RF solutions
    - Implemented within FASIT ICD protocols
    - Support both moving targets and deployed ranges

Synchronization with FoF

Campaign Initiative:

- Ensure same standards are used within target systems
- Targets must be compatible with weapon/platform implementation

Campaign Plan Details:

- Synchronization — Multi-year/On-going
  - Support dry-fire tables
  - Support shoot-back
  - Support indirect fire
- LVC integration/interoperability — Multi-year/On-going
  - Automatic JCR report generation on target exposure
  - Target activation based upon embedded training system commands
- Technology development — Multi-year/On-going
  - Support enhanced BDA and LOMAH
  - Support new platforms, technologies, and munitions

Outcomes: Device compatibility between FoF and FoT elements; Common ICD and protocols

Doctrine Alignment and Data

Campaign Initiative:

- Support higher level data gathering and analysis
- Support Commander's Intent of Training
- Enhanced silhouettes thermal (multispectral) representations

Campaign Plan Details:

- Support Data Collection
  - DTMS interoperability — Near-Term – 1 yr
  - Range performance trending data
  - AAR functionality — Mid-Term – 2-3 yrs
- Support Doctrine changes — Multi-year/On-going
  - New/modified TTPs
  - Adaptive Control to support asymmetric training
- Support improved target silhouettes
  - Lightweight and recyclable — Long-Term – 4-5 yrs
  - Standard (NSN) for all ranges
  - Time/posture based thermal representation

Outcomes: Export standards and formats; Technical data package for NSN based armor target silhouettes

Range Safety

Campaign Initiative:

- Support multiple use of ranges
- Supports deployable assets

Campaign Plan Details:

- Embed range safety calculations into TRACR Suite
  - Support adaptive range usage
  - Support deployable ranges
  - Supports new munitions usage on ranges
  - Generates out for RSO approval

Long-Term – 4-5 yrs

Outcomes: Enhanced automated tools

Range Scheduling

Campaign Initiative:

- Support higher level combined training concepts

Campaign Plan Details:

Long-Term – 4-5 yrs

- Develop tool set to create higher level scenario planning and training across multiple ranges
  - Focus on higher level unit training requirement
  - Cohesive training schedule/plan across multiple ranges
  - Commander's Intent focus
  - Minimize Soldier idol time while training
- Potential enhancement to a "training" focus range reservation system vice a "range" focus reservation system

Outcomes: Adaptive training scenario development tool with auto-feeds into existing LT2 scenario generation capabilities

Organic Deployment

Campaign Initiative:

- Deploying target system assets to every unit
- Deploying target system logistics to every unit

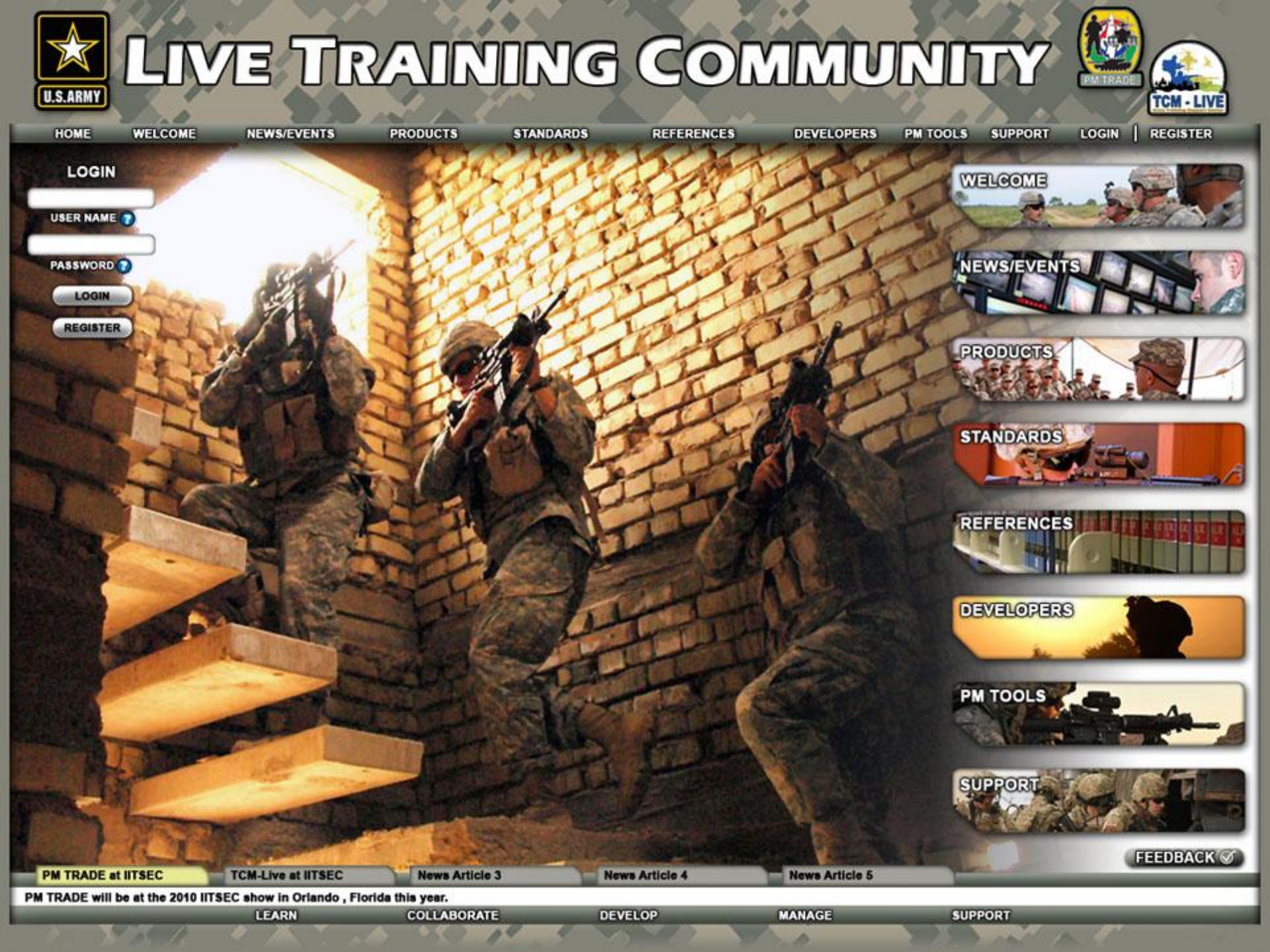
Campaign Plan Details:

Long-Term – 4-5 yrs

- Every unit has sufficient deployable target systems and infrastructure to support training requirements while deployed
- Target systems and architecture align to support roll-on/roll-off of live fire and FoF training events with need to refit each Soldier/platform
- Every unit has sufficient logistic elements to support and maintain the deployable, and homestation live fire and FoF training events

Outcomes: Embedded capabilities with units

New Live Training Portal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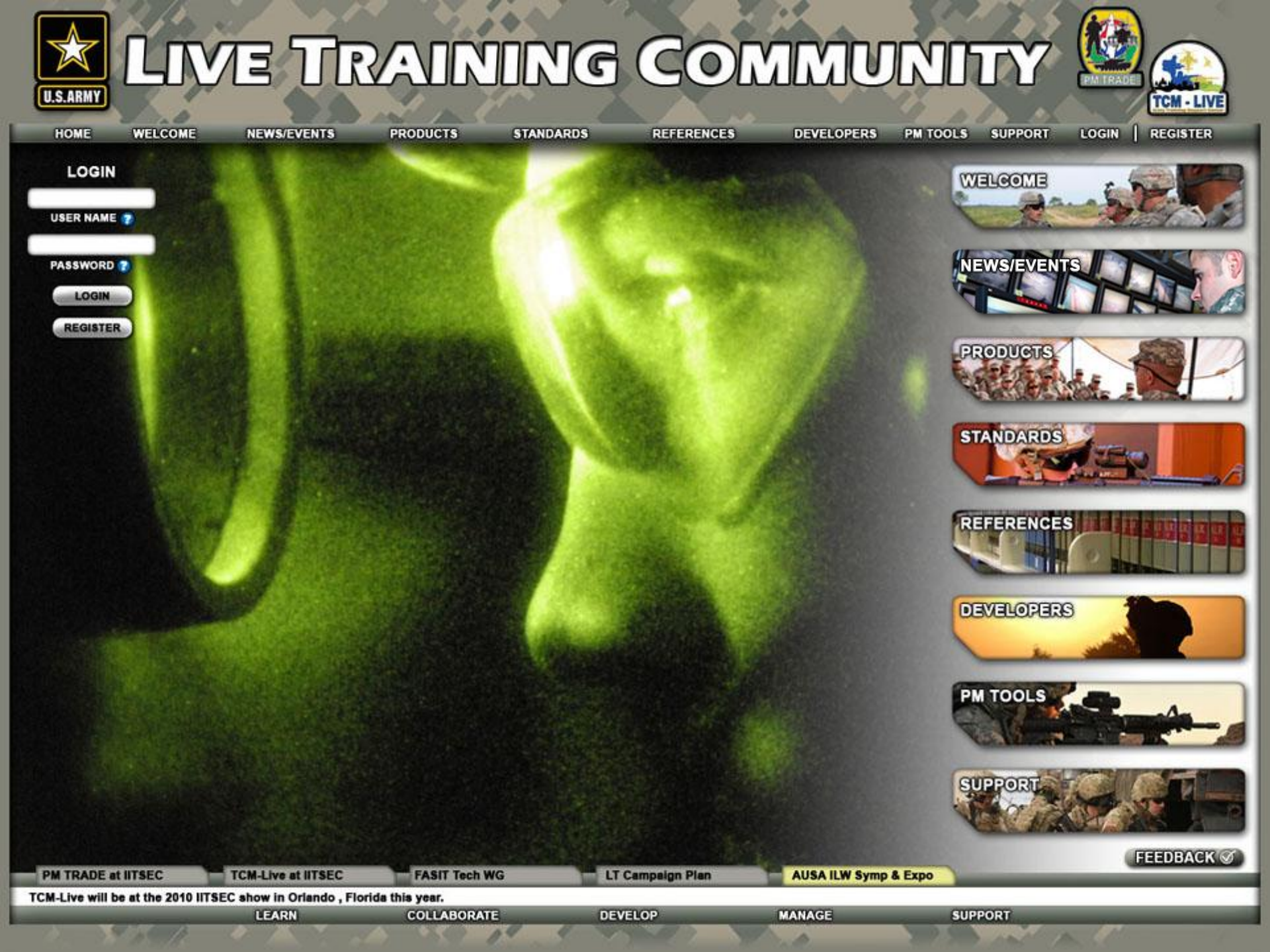
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Upcoming Event

- Executive “Brown Bag” lunch with PM TRADE:
  - Date: 11 January 2011
  - Location: TBD
  - POC: Rob Wolf
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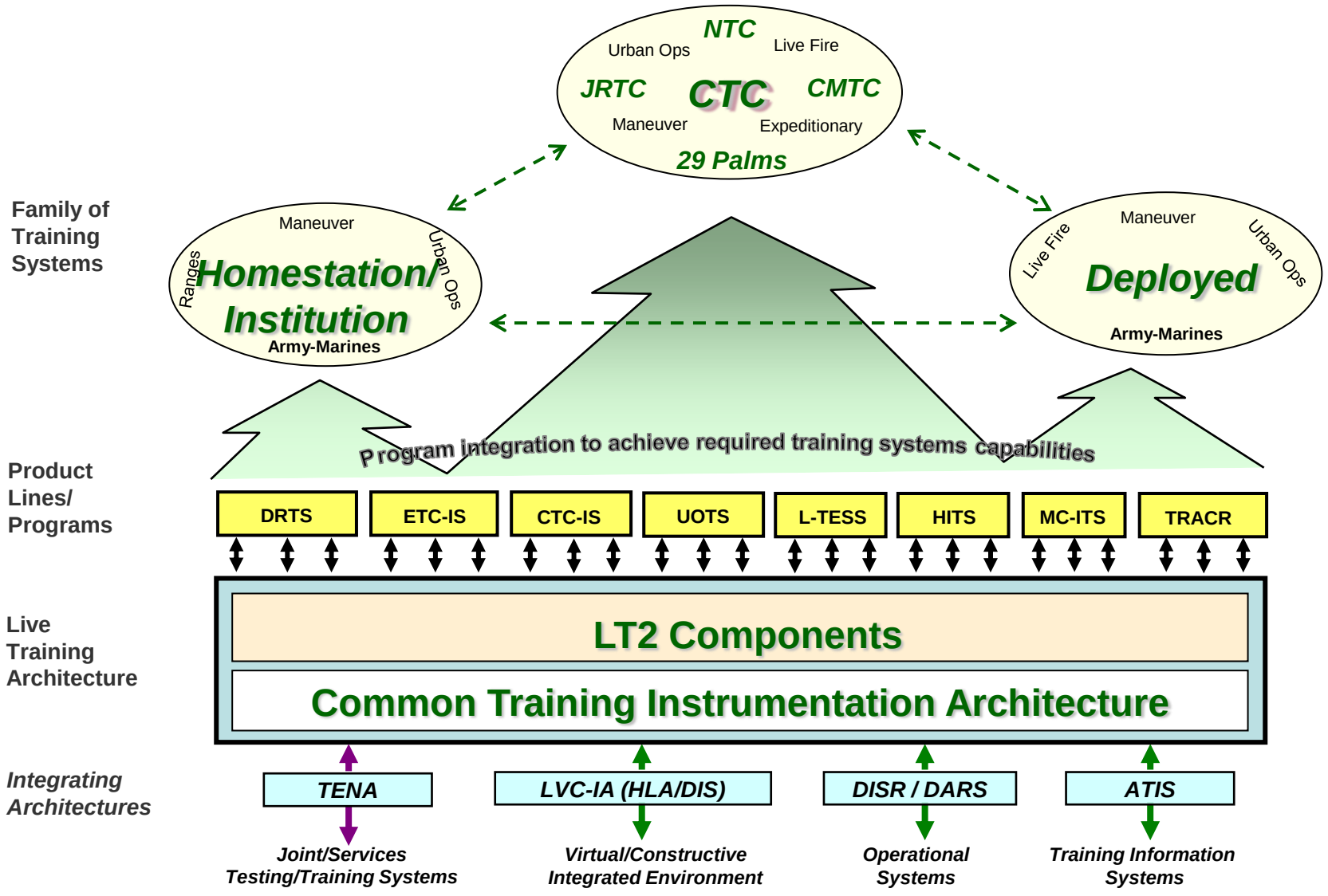
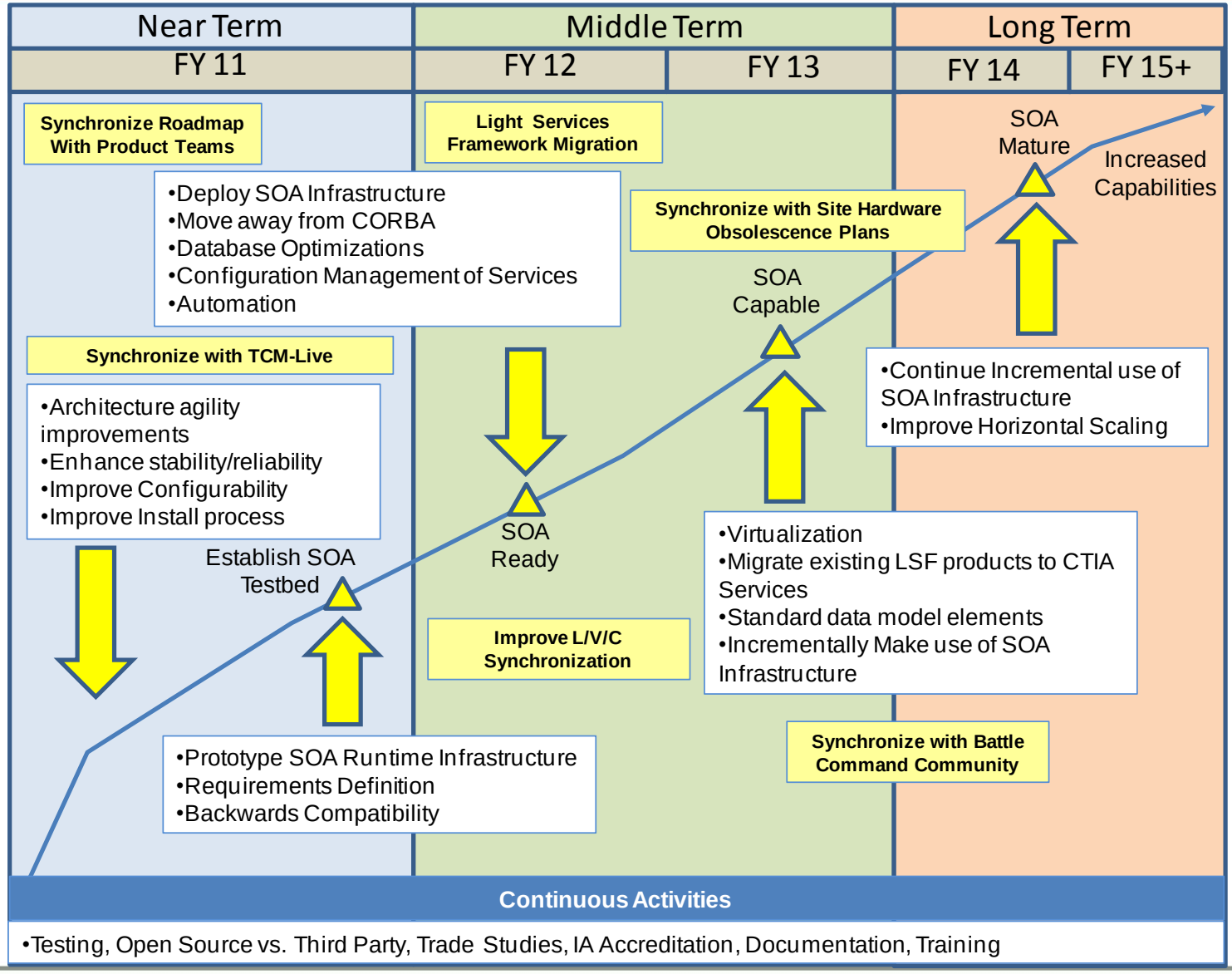
Questions

Backup Slides

Live Training Transformation – Family of Training Systems (LT2-FTS) Operational View



CTIA SOA Roadmap



Programmatic/Technology Thrust

Key
Capabilities Gaps:

-Indirect Fire
-Embedded to
Organic TESS
-Not limited by
environment
(weather,
obscurants, etc)
-High fidelity, RTCA,
Ph/Pk
-All System PMs
-Standardize/Common
H/W
-Reduced Soldier H/W
-Reduced external
power; increase
“green”
-Common
BLUFOR/OPFOR
-Inclusive Testing
Requirements
-Eliminate negative
training

Live Training Campaign Plan (TCM-L & PM Trade Combined Vision) - Near Term Time Line (LOE #2)

FY11	FY12

LOE #2 — 1 — 2

Force On Target (Objectives 10-16)

1. Continue refinement/development of FASIT Standards and protocols
   DP#1 - Deployable Range Architecture
   DP#2 - RF Protocol and Standards
2. Synchronization with F-o-F standards, interfaces, and protocols
3. Doctrine alignment and data gathering Enhancements
4. Range safety automation
5. RFMSS automation
6. Training capability and capacity built into operational systems organic to units and Soldiers

Target Modernization

Total Ownership Cost Management through Standardization
Revitalization of Existing Ranges and Equipment through Innovation
Improve Training through Enhanced Realism

FASIT

BLUF: Standardization

- Performance Specification
- Interface Controls
- Vender Agnostic
  - Black Box Approach
  - Plug-n-Play
- Everything in the Target Pit
- Decomposed Requirements

Legacy Software Adapters

TECHNOLOGY

BLUF: Target Realism Enhancements

- Non-Contact Hit Sensors
- Standard Armor Silhouettes
- Combat Identification Enablers
- Thermal Realism
- Fuel Cell Integration
- Autonomous Moving Targets

DSL Over Legacy Copper Modernization

TRACR

BLUF: Common Control

- LT2/CTIA
- Implements FASIT
- Common Look and Feel
- TC 25-8 Ranges
  - Maneuver
  - Lane based
- Government Owned

92+ Ranges/30+ Installations

"Training then - both good and bad - is habit forming. The difference is that one develops the battlefield habits that win; the other gets you killed."

SMA Glen E. Morrell